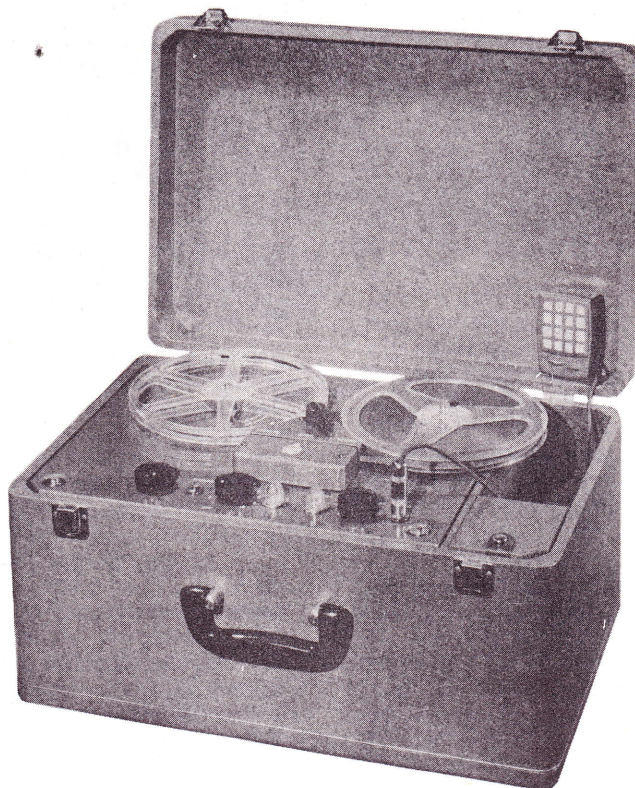




CRESTWOOD  
MODEL CP-201



CRESTWOOD  
MODEL CP-201

Figure 1

#### GENERAL INFORMATION

The Crestwood Tape Recorder, Model CP-201, is designed to magnetically record on a standard 7-inch reel of 1/4" wide tape, two tracks instead of one, which doubles the playing time with no loss in frequency response or quality.

Erasing, in the Model CP-201, is obtained by a 35 KC frequency at approximately 175 volts through the erase head coil. The erase head is so placed on the recorder that the tape passes through it before the recording head. Erasure takes place automatically as recording occurs, so that no special step is necessary.

Power supply is from 105-120 volts, 60 cycles AC. Do not connect the unit to DC power source.

Manufactured by:

Crestwood Recorder Corporation  
218 South Wabash Avenue  
Chicago 4, Illinois

*This material compiled and published by*

**HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA**

**DATE 12-50**

**SET 118**

**FOLDER 4**

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## OPERATING INSTRUCTIONS

### Preparing the Crestwood for Recording -

1. Insert line cord in a convenient wall receptacle of the proper rating.
2. Turn the volume control knob to the right - pilot light will light up.
3. Place a full reel of tape on the right hand spindle (11). Make sure the magnetic coating (dull side) is on the right spindle (11). Make sure the magnetic coating (dull side) is on the outside of the reel.
4. Place an empty reel on the left-hand spindle (22), and feed the end of the tape in the slot located between the two reels and then through one of the radial slots in the empty reel. Hold the end of the tape and rotate the reel, in a clockwise direction, four or five revolutions. The tape should now be firmly fastened to the takeup reel. The dull side of the tape should face outward on the supply reel and on the takeup reel.
5. Turn the "Record-Play" knob to the "Record" position.
6. If a microphone recording is to be made, connect the microphone to the "Mike" jack.
7. If a recording from a radio is desired, it is recommended that the connector cord be connected to the speaker voice coil, by means of the alligator clips, and the other end of the cord plugged into the microphone jack. It is also possible to make a connection to the plate side of the detector tube. This kind of connection may be desirable in some cases, because any circuit deficiencies in the amplifier of the radio will not be included in the recording.
8. Adjust the volume control so the neon light level indicator flashes intermittently. Care should be taken to adjust the input signal to such a level that, with a setting of 4 on the volume control, the neon level indicating light will flash intermittently. If the volume control setting for intermittent flashing of the neon light is 3, or below, the input signal level to the microphone jack is too low. A too high level input signal will cause an overload in the 12AX7 amplifier tube, and, when played back, the recording will be distorted. (Setting of the tone control is immaterial. It is not in the circuit on "Record.")
9. Turn the control knob (1) to the "Forward" position. This engages the drive mechanism and begins the recording.
10. To stop the recording, turn the control knob (1) to the "Stop" position.

The Crestwood is designed for two-channel recordings; therefore, when the full reel has been recorded, the two reels should then be interchanged, without rewinding, and the procedure, as outlined in steps 3 to 10, repeated.

### To Rewind -

To rewind a recording, merely turn the control knob (1) to the "Rewind" position.

### To Play a Recording -

1. Insert the line cord plug into a convenient wall receptacle of the proper rating.
2. Turn the "Volume" control knob to the right - pilot light will light up.
3. Place the full reel of the tape on the right-hand spindle (11). Make sure the dull-coated side is on the outside of the reel.
4. Place an empty reel on the left-hand spindle (22) and feed the end of the tape in the slot located between the two reels and then through one of the radial slots in the empty reel. Hold the end of the tape and rotate the reel, in a clockwise direction, four or five revolutions. The tape should now be firmly fastened to the takeup reel. The dull side of the tape should face outward on the supply reel and the takeup reel.
5. Turn the "Record-Play" switch to the "Play" position.
6. Turn the control knob (1) to "Forward" position. This engages the drive mechanism and begins the play-back.
7. Adjust the Volume and Tone controls to suit.

## ADJUSTMENTS

An open Record Head (10A) or Erase Head (10) must be replaced completely; however, a worn-out, or damaged Record Head or Erase Head lamination can be replaced as follows:

Remove entire head and bracket assembly (15) without disturbing the individual heads. On record head (10A), remove record head laminations by prying out with a screw driver. Press in new laminations with your fingers until laminations are seated in the yoke. The erase head lamination can be replaced in the same way.

### Identification of the laminations follows:

Record Head Lamination - Small Gap (.0005")  
with narrow steel and wide brass strip.

Erase Head Lamination - Wide Gap (.010")  
with wide steel and narrow brass strip.

Overall width on Erase Head (10) is greater than Record Head. Since the Crestwood is a two-channel machine, it is important to replace laminations with the steel sections uppermost in the Tape Guide.

### Motor, Power and Erase Switch -

The motor power switch (42) is set with the motor in the "Stop" position so that the contacts are open by the brazing action of the switch blade against the bakelite pin in the motor swing plate.

The Erase "Safety" switch (43) is mounted in the neutral "Stop" position so that the contacts are open and a gap of approximately 1/16" appears between motor mounting assembly (51) and the insulating bushing on the switch. The switch is so adjusted that



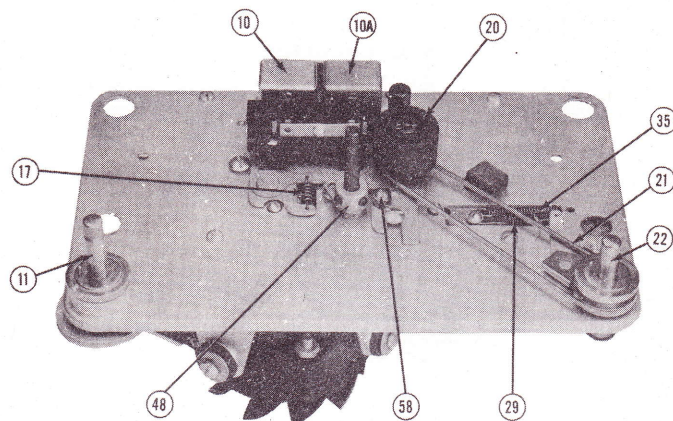


Figure 2

it makes a firm contact when the control knob is set in the "Forward" position. (This switch prevents accidental erasure while rewinding.)

#### The Forward Stop Lug -

The forward stop lug (57), Figure 3, should be set so the motor mounting assembly (51) comes to a rest position against it as soon as the drive roller (56) makes firm contact with the flywheel (39). Excessive pressure against the flywheel will prevent the motor from starting when the control lever is pressed quickly into the "Forward" position. Insufficient pressure will result in a slippage and "Wow." The best setting is to adjust the forward stop lug (57), Figure 3, 1/16" from the edge of the swing plate (51) at the point when the drive roller begins to touch the flywheel.

There is no rewind stop adjustment; however, the rewind drive pulley is located in a hanger whose position is adjusted by bending the stop lug (46A) against the swing plate bushing in a manner that will allow a clearance between the drive roller (56) and the rewind pulley (47) in the "Stop" position. This will also allow the drive roller to engage the drive pulley in the "Rewind" position. In this position, the rewind drive pulley hanger (46) is away from the stop, pressing the drive roller by means of the torsion spring that needs no adjustment.

#### Pressure Lever and Arm Adjusting Plate -

Set the pressure lever (16) so that it is vertical when the control knob is in the "Forward" or "Record-Playback" position. Also adjust the arm adjusting plate (58), Figure 2, so it will clear the pressure arm (16) by 1/64" when in this position. With normal adjustments, the tape guide (9) will move very slightly, or not at all, when the control is turned from the "Off" to the "Rewind" position.

#### Brake Spring -

The brake spring (29) should be adjusted so that the brake (26) clears the takeup pulley (44) and allows it to turn freely in either the "Forward" or "Rewind" position. The pressure in the "Off" or "Stop" position should be sufficient to prevent "coasting" of the reel. If the brake clearance is not equal in the "Forward" and "Rewind" positions, then the ad-

justment on the motor transfer lever (49) is incorrect.

#### Transfer Lever -

The transfer lever (49) should be adjusted when the control is in the "Off" or "Stop" position. Move the transfer lever (49) slightly and tighten the set screws of the transfer lever (49) when the drive roller (56) is midway between the rewind drive pulley (47) and the flywheel (39).

#### Head Pressure -

The head pressure is adjusted by means of two screws in the slotted holes in the head bracket (15). Both the Record Head (10A) and the Erase Head (10) should be adjusted into the tape guide block until the pressure pads on the reverse side show a movement of slightly less than 1/32". This adjustment gives the necessary 30 grams head pressure against the shoe for each head. "Wow" will result if too much pressure is used at this point.

#### Head Alignment -

The lateral movement of each head is done by moving the heads in the required direction by means of the screws in the slotted holes that hold the heads to the head bracket (15). The position should be such that there is no hanging up of the tape pressure guide when the control lever is turned to the "Stop" position.

The Record Head (11A) should be adjusted so that the air gap in the lamination is at right angles to the direction of the tape travel.

### TROUBLES

#### Irregular Speed "Wow" -

1. Felt pressure pads in tape guide assembly (9) worn.
2. Oil or grease on drive roller (56) or pressure roller (20).
3. Head pressure too great (see adjustment on head pressure). Be careful not to disturb the head alignment.

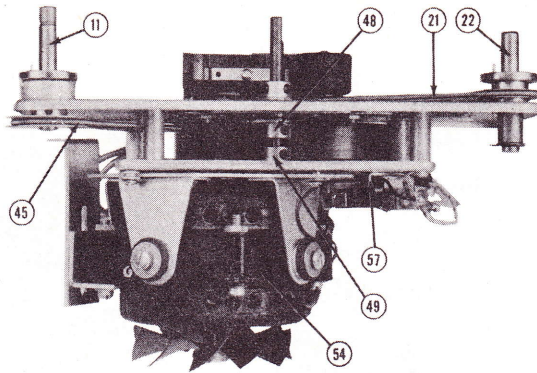


Figure 3

4. Insufficient pressure on pressure roller (20). Tighten spring (17) or replace roller (20).

5. Drive roller (56) or pressure roller (26) eccentric. Allow mechanism to run for 20 minutes. If after this time the rollers are still eccentric, replace with new rollers.

6. Motor shaft binding. Motor shaft should turn freely when the control knob is in the "Off" position. If necessary, realign bearings by tapping motor lightly with wooden mallet.

Motor Runs but Mechanism Will not Operate -

1. Motor Stop is adjusted incorrectly (see adjustment on "Pressure Lever and Arm Adjusting Plate").

2. Drive roller (56) defective. Replace.

Mechanism Runs Forward but Will not Rewind, or Vice Versa -

1. Check rewind belt (45) or take-up belt (21) for being broken or loose. Replace.

2. Motor Stop not adjusted properly (see adjustment on "Pressure Lever and Arm Adjusting Plate").

3. Pressure roller (20) interferes with panel in rewind position. Remove pressure roller (20) and chamfer bottom edge of roller 1/16" x 45°.

Control Knob Turns but Motor Assembly Does not Swing -

1. Motor transfer lever (49) set screws loose. Tighten the set screws with the mechanism in the "Stop" or "Neutral" position.

2. Transfer lever (49) loose at hub. Replace.

No Positive Detent Position for Motor Assembly -

1. Detent lever (48) loose. Tighten set screws.

2. Check detent lever (48) to see if it is loose at the hub. If so, replace.

Slow Speed -

1. Low-operating temperature.

2. Pressure arm spring (17).

3. Head pressure too great (see adjustment on "Head Pressure").

4. Flywheel (39) shaft binding. Check to see that the screws holding front and rear plates are tight and that plates are not warped.

5. Motor shaft binding. Realign bearings by tapping lightly on the motor.

Machine Will Play Back but Does not Record -

1. Defective microphone.

2. Microphone plugged in speaker outlet.

3. Defective amplifier.

High Background Noise (Hiss) -

1. Defective bias oscillator tube or circuit.

2. Defective tape.

3. Defective Record-Playback Head.

4. Record head magnetized. Demagnetize with 60-cycle AC air core coil.

Incomplete Erase -

1. Erase Voltage power too low.

2. Defective 6C4 oscillator.

3. Erase head open. Replace.

4. Poor contact on Record-Play switch.

Poor Recording -

1. Head gap not at right angles to tape (see adjustment on "Head Alignment").

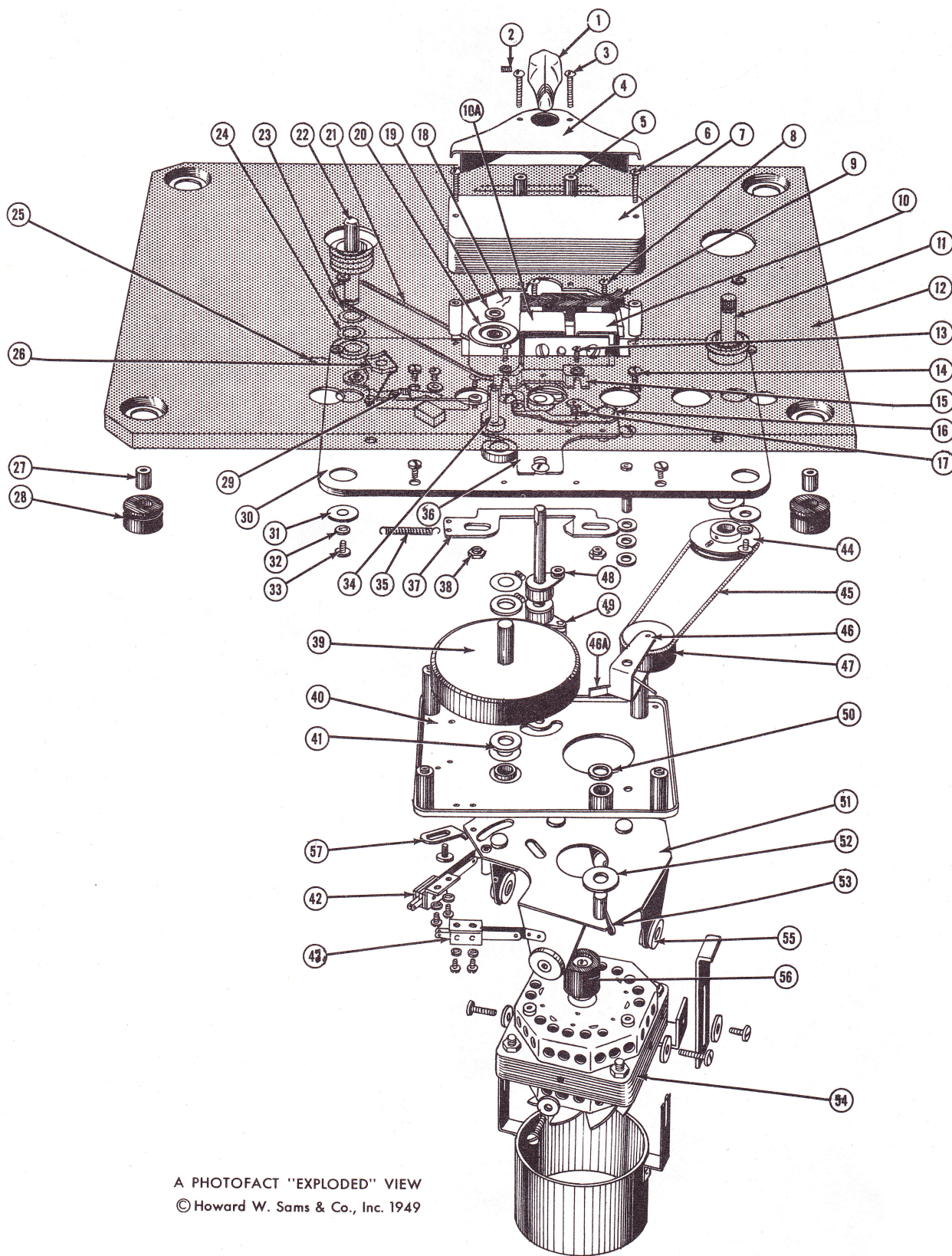
2. Overloading.

3. Defective, or damaged, head.

4. Head lamination damaged or worn.

5. Poor contact of head to tape caused by worn felt pressure pad.





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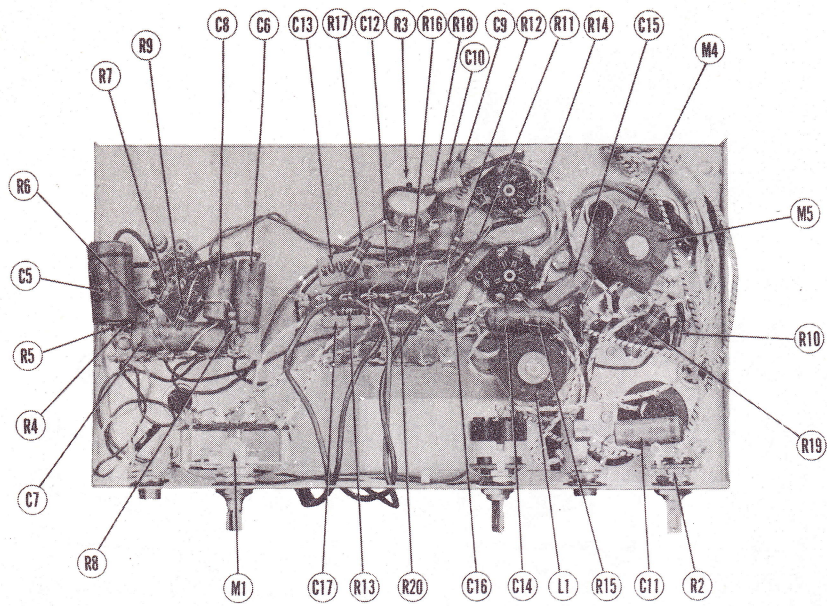


Figure 4

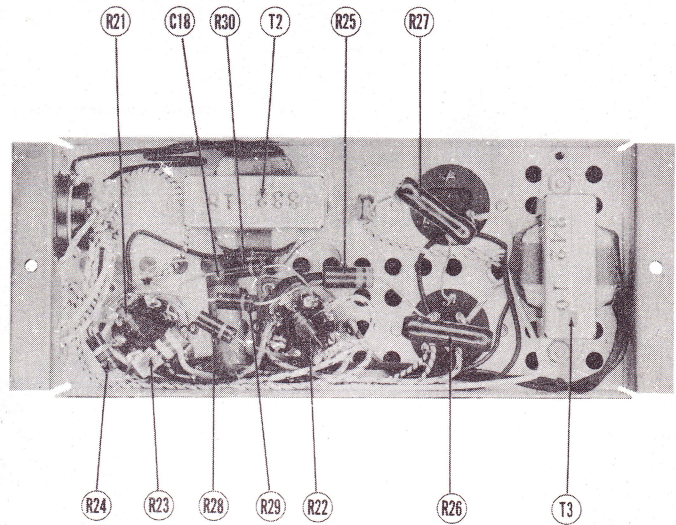


Figure 5

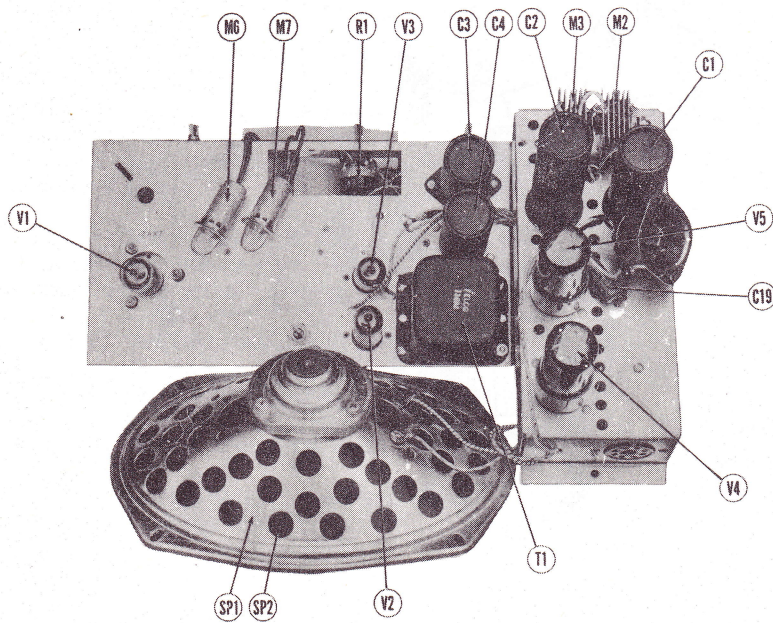
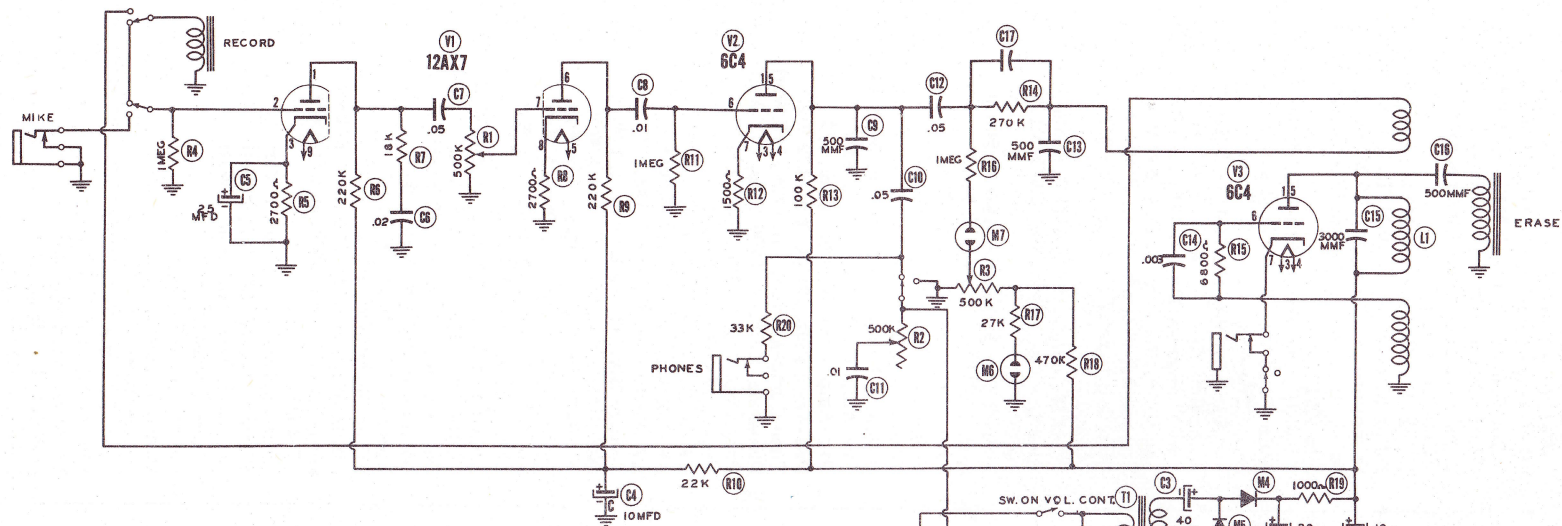
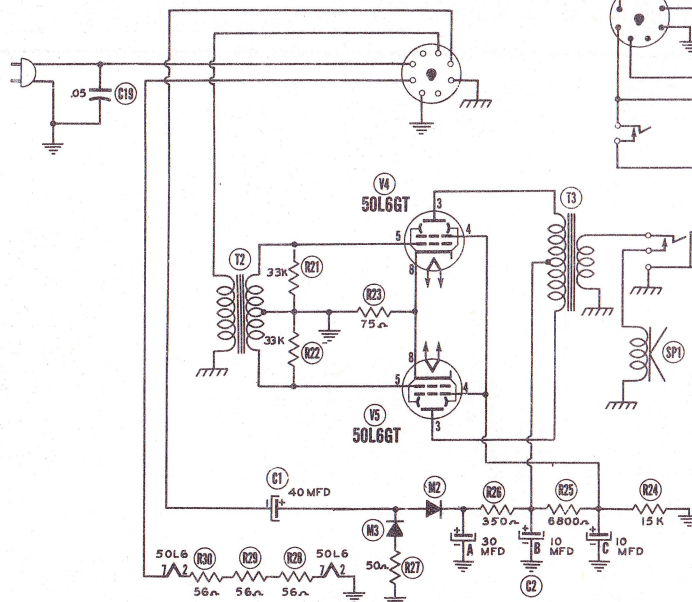


Figure 6





DENOTES CHASSIS  
 DENOTES B-.



Measurements made in play-back position.  
 \* Measured in record position.

VOLTAGE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12AX7	155VDC	0V	1.4VAC	3.2VAC	3.2VAC	155VDC	0V	1.4VDC
V 2	6C4	85VDC	300VDC	3.2VAC	3.2VAC	85VDC	0V	3.4VDC	
V 3	6C4	260VDC	0V	3.2VAC	3.2VAC	260VDC	5-27VDC	0V	
V 4	50L6GT	0V	0V	140VDC	125VDC	0V	62VAC	45VAC	8VDC
V 5	50L6GT	0V	70VAC	140VDC	125VDC	0V	55VAC	117VAC	8VDC

§ Taken with vacuum tube voltmeter.

RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12AX7	1240KΩ	1 Meg.	2.7KΩ	.5Ω	.5Ω	1240KΩ	500KΩ	2.7KΩ
V 2	6C4	1100KΩ	1100Ω	.5Ω	.5Ω	1100Ω	1 Meg.	1.5KΩ	
V 3	6C4	1100Ω	Inf.	.5Ω	.5Ω	1100Ω	7KΩ	0Ω	
V 4	50L6GT	0Ω	0Ω	480Ω	7KΩ	1.3KΩ	90Ω	42Ω	80Ω
V 5	50L6GT	0Ω	95Ω	450Ω	7KΩ	1.2KΩ	75Ω	70Ω	80Ω

† Measured from output of M4.  
 ‡ Measured from output of M3.

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CRESTWOOD  
 MODEL CP-201



MECHANICAL PARTS LIST				
Ref. No.	Part No.	Description		
1	P122	Control Knob	V4	Power Output, 50L6GT
2		Set Screw for Control Knob	V5	Power Output, 50L6GT
3		Plate Mounting Screws	C1	Voltage Doubler Cap. (Electrolytic), 40 MFD. @ 250 V.
4	M101	Front Plate	C2A	Filter (Electrolytic), 30 MFD. @ 350 V.
5	R320	Plate Spacer	C2B	Filter (Electrolytic), 10 MFD. @ 350 V.
6		Plate Mounting Screw	C2C	Filter (Electrolytic), 10 MFD. @ 350 V.
7	M102	Rear Plate	C3	Voltage Doubler Cap. (Electrolytic), 40 MFD. @ 250 V.
8		Pressure Arm Stop Screw	C4A	Filter (Electrolytic), 30 MFD. @ 350 V.
9	A105	Tape Guide Assembly	C4B	Filter (Electrolytic), 10 MFD. @ 350 V.
10	A108	Record and Erase Head Mounting Assembly	C4C	Decoupling (Electrolytic), 10 MFD. @ 350 V.
	A107	Erase Head	C5	Pre-amp. Cathode Bypass (Electrolytic), 25 MFD. @ 50 V.
	P128	Erase Head Lamination	C6	Tone Compensation, .02 MFD. @ 400 V.
10A	A106	Record Head	C7	Audio Coupling, .05 MFD. @ 400 V.
	P127	Record Head Lamination	C8	Audio Coupling, .01 MFD. @ 400 V.
	A116	Rewind Shaft Assembly	C9	AF Plate Bypass, 500 MMFD. @ 500 V.
11		Main Base Plate	C10	Audio Coupling, .05 MFD. @ 400 V.
12		Mounting Screw for Head Bracket	C11	Tone Compensation, .01 MFD. @ 400 V.
13		Mounting Screw	C12	Audio Coupling, .05 MFD. @ 400 V.
14	M116	Head Bracket	C13	Voltage Divider, 500 MFD. @ 500 V.
15	M104	Pressure Arm	C14	Bias Oscillator Grid Cap., .003 MFD. @ 600 V.
16	P114	Pressure Arm Spring	C15	Fixed Trimmer, 3000 MMFD. @ 500 V.
17	S102	Hairpin Clip	C16	Bias Oscillator Coupling, 500 MMFD. @ 500 V.
18		Flat Washer	C17	Voltage Divider, 250 MMFD. @ 500 V.
19	A183	Pressure Roller	C18	Line Isolation, .1 MFD. @ 200 V.
20	P113	Take-up Drive Belt	C19	Line Filter, .05 MFD. @ 400 V.
21	A115	Take-up Shaft Assembly	R1	Volume Control and Switch, 500K Ohm
22		Flat Washer	R2	Tone Control, 500K Ohm
23		Flat Washer	R3	Indicator Lamp Flash Control, 500K Ohm
24		Flat Washer	R4	Pre-Amp. Grid, 1 Meg., 1/2 Watt
25	S103	Hairpin Clip	R5	Pre-Amp. Cathode, 2700 Ohm, 1/2 Watt
26	A114	Brake Assembly	R6	Pre-Amp. Plate, 220K Ohm, 1/2 Watt
27		Spacer	R7	Tone Compensation, 18K Ohm, 1/2 Watt
28		Rubber Mounting Grommet	R8	Pre-Amp. Cathode, 2700 Ohm, 1/2 Watt
29	P116	Brake Spring	R9	Pre-Amp. Plate, 220K Ohm, 1/2 Watt
30		Sub-Mounting Plate	R10	Filter, 22K Ohm, 1/2 Watt
31		Flat Washer	R11	AF Grid, 1 Meg., 1/2 Watt
32		Lock Washer	R12	AF Cathode, 1500 Ohm, 1/2 Watt
33		Mounting Screw	R13	AF Plate, 100K Ohm, 1/2 Watt
34	R306	Roller Stud	R14	Voltage Divider, 270K Ohm, 1/2 Watt
35	P115	Detent Spring	R15	Oscillator Grid, 6800 Ohm, 1/2 Watt
36	M103	Roller Plate	R16	Series Neon Lamp, 1 Meg., 1/2 Watt
37	M107	Detent Slide	R17	Series Neon Lamp, 27K Ohm, 1 Watt
38	R419	Shouldered Nut	R18	Voltage Divider, 470K Ohm, 1/2 Watt
39	A101	Fly-Wheel Assembly	R19	Filter, 1000 Ohm, 1 Watt
40		Mounting Plate	R20	Series Phono Jack, 33K Ohm, 1/2 Watt
41	P110	Felt Washer	R21	Output Grid, 33K Ohm, 1/2 Watt
42	P119	Stack Switch Motor	R22	Output Grid, 33K Ohm, 1/2 Watt
43	P120	Stack Switch Erase	R23	Output Cathode, 75 Ohm, 1 Watt
44	R437	Rewind Pulley	R24	Bleeder, 15K Ohm, 1 Watt
45	P112	Rewind Drive Belt	R25	Filter, 6800 Ohm, 2 Watt
46	M111	Rewind Arm	R26	Filter (Wire Wound), 350 Ohm, 5 Watt
47	R348	Rewind Drive Pulley	R27	Surge Limiter (Wire Wound), 50 Ohm, 5 Watt
48	A111	Rewind Pulley Assembly	R28	Filament String, 56 Ohm, 1 Watt
49	A113	Pressure Lever Assembly	R29	Filament String, 56 Ohm, 1 Watt
50	A109	Detent Lever Assembly	R30	Filament String, 56 Ohm, 1 Watt
51	A110	Motor Transfer Assembly	T1	Power Transformer
52	A102	Motor Swing Plate Assembly	T2	Driver Transformer
53	P111	Felt Washer	T3	Output Transformer
54	S101	Cotter Pin	SP1	PM Speaker
55	P125	Motor	SP2	Cone, 3.2 Ohm Voice Coil
56	P123	Rubber Grommets	L1	Bias Oscillator Coil
57	A181	Rubber Drive	M1	Record-Playback Switch
58	M109	Motor Stop Lug	M2	Selenium Rectifier
	M105	Arm Adjusting Plate	M3	Selenium Rectifier
			M4	Selenium Rectifier
			M5	Selenium Rectifier
			M6	Neon Indicator
			M7	Neon Indicator
ELECTRICAL PARTS LIST				
Item No.	Description			
V1	Pre-amp. 12AX7			
V2	AF Amplifier, 6C4			
V3	Oscillator, 6C4			